

REMARKS

Claims 1-10 and 12-14 and 16-23 are active in the present application. Claims 11 and 15 have been cancelled. Claims 16-23 are new claims. Support for the new claims is found in the original claims. No new matter is believed to have been added by this amendment. An action on the merits and allowance of claims is solicited.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



Norman F. Oblon  
Attorney of Record  
Registration No. 24,618

Stefan U. Koschmieder, Ph.D.  
Registration No. 50,238



**22850**

(703) 413-3000  
Fax #: (703) 413-2220  
SUKOS/rac  
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IN THE TITLE

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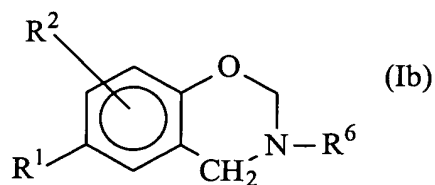
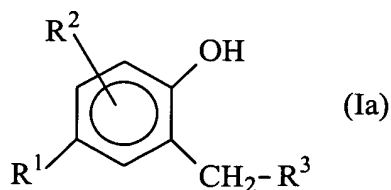
[PREPARATION OF POLYISOBUTENYLPHENOL-CONTAINING MANNICH ADDUCTS]

--METHOD FOR PRODUCING MANNICH ADDUCTS THAT CONTAIN POLYISOBUTYLENE PHENOL--

IN THE CLAIMS

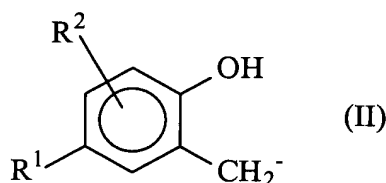
--2. (Amended) [A] The process as claimed in claim 1, wherein the amine [used] is 3-(dimethylamino)-n-propylamine, di[3-(dimethylamino)-n-propyl]amine, dimethylamine, diethylamine or morpholine.

3. (Amended) [A] The process as claimed in [either of claims 1 and 2] claim 1, wherein an adduct mixture is obtained which comprises at least 40 mol% of compounds of the formula Ia and/or Ib,



where

- R<sup>1</sup> is a terminally bonded polyisobutenyl radical,
- R<sup>2</sup> is H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>1</sub>- to C<sub>20</sub>-alkoxy, hydroxyl, a polyalkylenyl radical or CH<sub>2</sub>NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup> have the meanings stated below, and
- R<sup>3</sup> is NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup>, independently of one another, are selected from the group consisting of H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>3</sub>- to C<sub>8</sub>-cycloalkyl and C<sub>1</sub>- to C<sub>20</sub>-alkoxy radicals which may be interrupted and/or substituted by [heteroatoms selected from] N and O heteroatoms, and phenol radicals of the formula II



where R<sup>1</sup> and R<sup>2</sup> are as defined above;

with the proviso that R<sup>4</sup> and R<sup>5</sup> are not simultaneously H or phenol radicals of the formula II; or R<sup>4</sup> and R<sup>5</sup>, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two [heteroatoms selected from] N and O heteroatoms and may be substituted by one, two or three C<sub>1</sub>- to C<sub>6</sub>-alkyl radicals; and

R<sup>6</sup> is a radical R<sup>4</sup> or R<sup>5</sup> other than H.

4. (Amended) [A] The process as claimed in [any of the preceding claims] claim 1, wherein an adduct having a polydispersity of from 1.1 to 3.5 is obtained.

5. (Amended) [A] The process as claimed in [any of the preceding claims] claim 1, wherein R<sup>1</sup> has a number average molecular weight of from 300 to 850.

6. (Amended) [A] The process as claimed in [any of claims 1 to 5] claim 1, wherein the reaction mixture from b) is fractionated by column chromatography over an acidic stationary phase by multistage elution with

- at least one hydrocarbon and then
- at least one basic alcohol/water mixture.

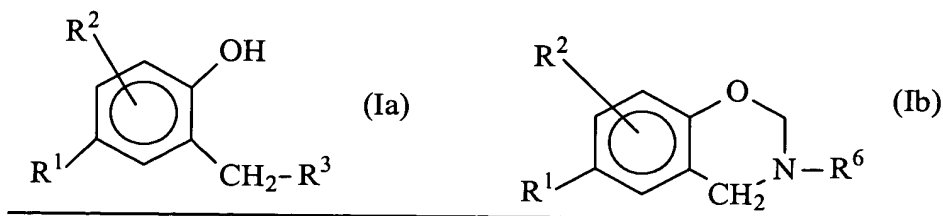
7. (Amended) [A] The process as claimed in claim 6, wherein the basic alcohol/water mixture [used] is a mixture of

- a) from 75 to 99.5% by weight of at least one C<sub>2</sub>- to C<sub>4</sub>-alcohol,
- b) from 0.4 to 24.4% by weight of water, and
- c) from 0.1 to 15% by weight of at least one amine which is volatile at room temperature.

8. (Amended) [A] The process as claimed in [any of the preceding claims] claim 1, wherein the adduct mixture obtained includes from 0 to 20 mol%[, preferably 1 to 15 mol%,] of polyisobutenylphenols from reaction step a) which have not been further reacted.

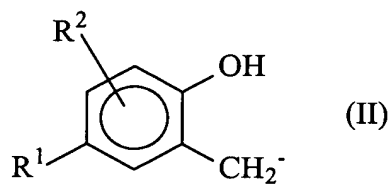
9. (Amended) A Mannich adduct [obtainable] obtained by [a] the process as claimed in [any of claims 1 to 8] claim 1.

10. (Amended) A Mannich adduct comprising at least one compound of the formula Ia and/or Ib,



where

- R<sup>1</sup> is a terminally bonded polyisobutenyl radical,
- R<sup>2</sup> is H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>1</sub>- to C<sub>20</sub>-alkoxy, hydroxyl, a polyalkylenyl radical or CH<sub>2</sub>NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup> have the meanings stated below, and
- R<sup>3</sup> is NR<sup>4</sup>R<sup>5</sup>, where R<sup>4</sup> and R<sup>5</sup>, independently of one another, are selected from the group consisting of H, C<sub>1</sub>- to C<sub>20</sub>-alkyl, C<sub>3</sub>- to C<sub>8</sub>-cycloalkyl and C<sub>1</sub>- to C<sub>20</sub>-alkoxy radicals which may be interrupted and/or substituted by N and O heteroatoms, and phenol radicals of the formula II



where R<sup>1</sup> and R<sup>2</sup> are as defined above;

with the proviso that R<sup>4</sup> and R<sup>5</sup> are not simultaneously H or phenol radicals of the formula II; or R<sup>4</sup> and R<sup>5</sup>, together with the N atom to which they are bonded, form a 5-, 6- or 7-membered cyclic structure which has one or two N and O heteroatoms and may be substituted by one, two or three C<sub>1</sub>- to C<sub>6</sub>-alkyl radicals; and

R<sup>6</sup> is a radical R<sup>4</sup> or R<sup>5</sup> other than H.--

11. (Cancelled).

--12. (Amended) An additive concentrate containing, in addition to conventional additive components, at least one Mannich adduct as claimed in claim 9 [ or 10] in amounts of from 0.1 to 99.9% by weight[, preferably 0.5 to 80% by weight].

13. (Amended) A fuel composition containing a main amount of a liquid hydrocarbon fuel and an amount, having detergent activity, of at least one adduct as claimed in claim 9 [ or 10].

